

CLAIMS

What is claimed is

- 5 1. A method for making a spin valve comprising:
 - a) providing a substrate;
 - b) depositing a first ferromagnetic layer having a first surface on the substrate;
 - c) depositing a spacer layer having a second surface;
 - 10 d) depositing a second ferromagnetic layer, wherein the spacer layer is disposed between the first and second ferromagnetic layers; and
 - e) exposing one or more of the first and second surfaces to an oxygen partial pressure, then decreasing the oxygen partial pressure before depositing a subsequent layer.
- 15 2. The method of claim 1, wherein one or more of the first and second surfaces are exposed to an oxygen partial pressure of between about 1×10^{-7} Torr and about 5×10^{-5} Torr.
3. The method of claim 2, wherein the oxygen partial pressure decreases below an oxygen partial pressure level used in exposing the first and second surfaces before the depositions of the spacer layer and the second ferromagnetic layer.
- 20 4. The method of claim 3, wherein the first surface is exposed to the oxygen partial pressure before depositing the spacer layer.
5. The method of claim 3, wherein the second surface is exposed to the oxygen partial pressure before depositing the second ferromagnetic layer.
- 25 6. The method of claim 1, wherein an ion beam sputtering process is used for depositions of the first ferromagnetic, second ferromagnetic and spacer layers .
7. The method of claim 1, wherein oxygen molecules are directed toward the substrate, and a substrate shutter is fully open for the first and second surfaces to be directly exposed to

the oxygen.